

Appl. No. 10/517,143
Amendment dated August 23, 2006
Reply to Office Action of May 30, 2006

AMENDMENTS TO THE DRAWINGS:

The attached sheet of drawings includes a change to Figure 3. Specifically, the dimensions of the first length (ϕr) and the outer radius (ϕR) are shown. This sheet, which includes Figure 3, replaces the original sheet including Figure 3.

Attachment: one (1) replacement sheet

REMARKS

In the May 30, 2006 Office Action, all of the claims stand rejected in view of prior art.

Status of Claims and Amendments

In response to the May 30, 2006 Office Action, Applicant has amended the claims as indicated above. Thus, claims 3-25 are pending, with claims 3 and 4 being the only independent claims. Reexamination and reconsideration of the pending claims are respectfully requested in view of above amendments and the following comments.

Drawings

On page 2 of the Office Action, the drawings were objected to as failing to comply with 37 CFR §1.83(a).

The dimensions of the first length (ϕr) and the outer radius (ϕR) and the connecting portion (D) are illustrated in Figure 5, which is an enlarged view of Figure 3. Applicant submits herewith an amended Figure 3 that shows the dimensions of the first length (ϕr) from the rotational axis (O-O) to the connecting portion (D) and the outer radius (ϕR) of the impeller 113.

Referring to Exhibit A in Applicant's Remarks, a ruler is superimposed on amended Figure 3. As can be seen from Exhibit A, the first length (ϕr) is illustrated with a length of about 7 cm and the outer radius (ϕR) is illustrated with a length of about 6.6 cm. Thus, the ratio $\frac{(\phi r)}{(\phi R)} \approx \frac{7}{6.6} \approx 1.09$ is illustrated in Figure 3. Accordingly, a ratio between the claimed range of greater than or equal to 0.8 to less than 1.4 is shown in Figure 3. The objection in the Office Action referred to a ratio less than 1. It is unclear why a ratio less than 1 is needed to be shown. Applicant respectfully submits that the drawings comply with

37 CFR 1.83(a) since a ratio within the claimed range is illustrated. Applicant respectfully requests withdrawal of the objections.

Rejections - 35 U.S.C. § 102

On page 3 of the Office Action, claims 1, 2, 8-11, 14, 16, 17 and 19 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,813,831 (Matsunaga). Applicant has cancelled claims 1 and 2 and amended the dependent claims to depend from independent claims 3 or 4.

Rejections - 35 U.S.C. § 103

On pages 4 and 5 of the Office Action, claims 3-7, 12, 13, 15 and 18 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Matsunaga in view of Japanese Patent No. 63-80097 (Ogino) and Japanese Patent No. 2003-013888 (Higashida). In response, Applicant has incorporated independent claims 3 and 4 into independent form.

Independent claim 3 requires a length ratio of greater than or equal to 0.8 and less than 1.4. Independent claim 4 requires an angle greater than 60° and less than 90°. This arrangement is ***not*** disclosed or suggested by Matsunaga et al or any other prior art of record. It is well settled in U.S. patent law that the mere fact that the prior art can be modified does ***not*** make the modification obvious, unless the prior art ***suggests*** the desirability of the modification.

The Office Action alleges that Applicant has not disclosed that the limitations of claims 3 and 4 solve any stated problem or are for any particular purpose ***but then paraphrases a stated problem or a particular purpose found in Applicant's specification.*** Specifically, the Office Action states that “the recessed portion relative to the impeller reduces the turbulence caused by the turning flow around the main plate...” and “the recessed portion provides a negative pressure space to reduce flow separation....” Thus, Applicant's specification has been used to provide motivation to modify the centrifugal blower of

Matsunaga et al. This is clearly hindsight. "The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention." MPEP §2141

II. Basic Considerations which Apply to Obviousness Rejections.

Moreover, Applicant's specification details the reasons for the limitations of claims 3 and 4.

Regarding claim 3, the specification states at page 4, line 21 to page 5, line 3:

For example, if the abovementioned length ratio is set to less than 0.8, then the radial distance between the recessed part and the inlet would be small and, consequently, the wall surface flow would unfortunately arrive at the inlet before sufficiently obtaining the function of suppressing the breaking away of the wall surface flow by the recessed part. However, if the abovementioned length ratio is set to greater than 1.4, the radial distance between the recessed part and the inlet would be large and, consequently, the wall surface flow whose breaking away was once suppressed would unfortunately arrive at the inlet in a state wherein it once again began to break away.

Thus, in this centrifugal fan, arranging the recessed part at an appropriate radial position according to the size of the outer diameter of the impeller enables the function that suppresses the breaking away of the wall surface flow due to the formation of the recessed part to be accomplished as an advantageous effect of reliably reducing turbulence in the flow in the vicinity of the inlet.

Regarding claim 4, the specification states at page 5, lines 11-24:

For example, if the abovementioned angle is set to less than 60°, then the pressure tends not to vary precipitously when the wall surface flow flows from the flat part to the recessed part, making it difficult to obtain sufficiently the function of suppressing the breaking away of the wall surface flow. However, if the abovementioned angle is set to greater than 90°, then it only adds space that does not for the most part contribute as negative pressure space, and reduces the contribution to the improvement of the function of suppressing of the breaking away of the wall surface flow; in addition, dye cutting is difficult when such a bell mouth is formed from resin, and the like.

Thus, in this centrifugal fan, setting the angle between the flat part and the surface proceeding from the flat part to the recessed part to an appropriate angular range enables the function that suppresses the breaking away of the wall surface flow due to the formation of the recessed part, achieving an advantageous effect of reliably reducing turbulence in the flow in the vicinity of the inlet.

Thus, Applicant has plainly stated a solution to a problem or a particular purpose for the limitations.

Moreover, Applicant believes that dependent claims 5-25 are also allowable over the prior art of record in that they depend from independent claim 3 or 4, and therefore are allowable for the reasons stated above. Also, the dependent claims are further allowable because they include additional limitations. Thus, Applicant believes that since the prior art of record does not disclose or suggest the invention as set forth in independent claims 3 and 4, the prior art of record also fails to disclose or suggest the inventions as set forth in the dependent claims.

Therefore, Applicant respectfully requests that this rejection be withdrawn in view of the above comments and amendments.

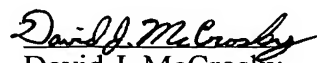
Prior Art Citation

In the Office Action, additional prior art references were made of record. Applicant believes that these references do not render the claimed invention obvious.

Conclusion

In view of the foregoing amendment and comments, Applicant respectfully asserts that claims 3-25 are now in condition for allowance. Reexamination and reconsideration of the pending claims are respectfully requested.

Respectfully submitted,


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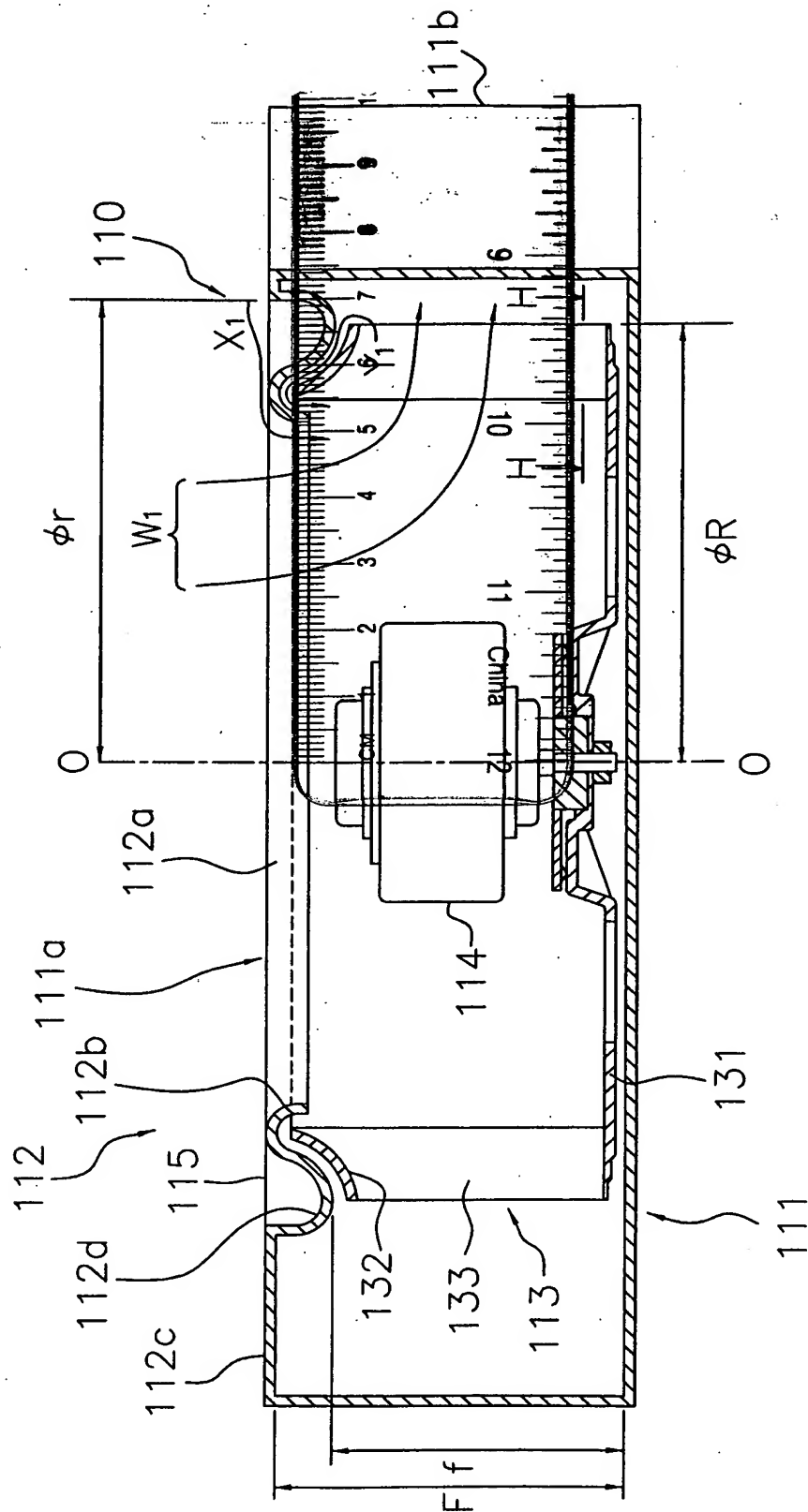


Fig. 3 Exhibit A